

WHAT IS CLAIMED IS:

1. A method for transmitting information using ultra-wide band transmission, the method comprising:

5 allocating, for signal transmission, each of a plurality of frequency sub-bands; and  
sending an ultra-wide band transmission comprising the information by  
transmitting a burst symbol cycle signal over each of the plurality of frequency sub-bands.

2. The method of claim 1, comprising sending at least two of the burst symbol cycle signals  
10 serially.

3. The method of claim 1, comprising sending at least two of the burst symbol cycles in  
parallel.

15 4. The method of claim 1, comprising switching off power to at least one circuit during OFF  
periods of a transmission to decrease power consumption.

5. The method of claim 4, comprising maintaining signal frequency and phase from an end  
of an ON period to a beginning of the following ON period.

20 6. The method of claim 4, comprising maintaining signal frequency from an end of an ON  
period to a beginning of the following ON period.

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7. The method of claim 4, comprising utilizing at least one of an analog wave generator, digital wave generator, and a combination analog and digital wave generator.

8. A fast switching frequency generator for facilitating generation of a multi-band ultra-

5 wide band transmission, the generator comprising a circuit, the circuit comprising:

at least one voltage controlled oscillator;

at least one divider;

wherein the at least one voltage controlled oscillator is adapted for use in generating a signal of a particular center frequency, and wherein the at least one divider is

10 adapted for use in facilitating generation of multiple transmission frequency bands of the multi-band ultra-wide band transmission by outputting, from an input signal of a particular center frequency, signals of different frequency multiples of a step frequency.

9. The method of claim 8, comprising using QPSK modulation, and comprising multiplying

15 an input signal with a data signal prior to generating signals of different frequency multiples of a step frequency.

10. A method for facilitating transmission of information using ultra-wide band transmission, the method comprising:

20 generating a first digital signal for use in an ultra-wide band transmission; and

substantially removing at least one harmonic from the first digital signal by subtracting, from the first digital signal, a second digital signal that is a delayed form of the first digital signal, to produce a third digital signal that is of substantially the same frequency as the

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first digital signal but that substantially does not include at least one harmonic included in the first digital signal.

11. The method of claim 10, wherein the subtracting comprises using differential inputs to a  
5 switch mixer.

12. A method for transmitting information using ultra-wide band transmission, the method comprising:

allocating, for signal transmission, each of a plurality of frequency sub-bands; and

10 sending an ultra-wide band transmission comprising the information by

transmitting a signal over each of the plurality of frequency sub-bands;

wherein phase continuity is maintained by:

dividing each of the frequency sub-bands into a plurality of

segments; and

15 cycling transmission between segments of each of the sub-bands.

13. The method of claim 12, comprising cycling transmission between segments of each of the frequency sub-bands to produce a signal of substantially uninterrupted phase.

20 14. A method for transmitting information using ultra-wide band transmission, the method comprising:

allocating, for signal transmission, each of a plurality of frequency sub-bands; and

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sending an ultra-wide band transmission comprising the information by  
transmitting a signal over each of the plurality of frequency sub-bands, comprising producing at  
least one analog carrier wave of a frequency sub-band using outputs from a plurality of digital to  
analog converters.

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15. The method of claim 14, wherein producing the at least one analog carrier wave  
comprises each of the digital to analog converters outputting a portion of the analog carrier wave  
based on an input bit, and comprises cycling through input values to produce consecutive  
segments of the analog carrier wave.

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16. A method for transmitting information using ultra-wide band transmission, the method  
comprising:

allocating, for signal transmission, each of a plurality of frequency sub-bands; and  
sending an ultra-wide band transmission comprising the information by

15 transmitting a signal over each of the plurality of frequency sub-bands, comprising using a sine  
wave envelope to reduce side lobes in at least one carrier frequency, comprising multiplying a  
signal by a sine wave of a lower frequency than the carrier frequency.

17. The method of claim 16, comprising varying pulse bandwidth while pulse repetition  
20 frequency remains constant, to facilitate control of signal spectrum characteristics and receiver  
selectivity.

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18. A method for facilitating transmission of information using ultra-wide band transmission,  
the method comprising:

generating at least one carrier wave for use in an ultra-wide band transmission;

and

5 isolating a single monocycle from the carrier wave by:

producing a first signal that is a delayed form of the carrier wave;

and

combining the carrier wave with the first signal to isolate a single  
monocycle.

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19. The method of claim 18, comprising producing a first signal that is a delayed form of the  
carrier wave by at least one of multiplying the carrier wave by a clock signal and switching the  
carrier wave using a mixer.

15 20. The method of claim 18, comprising feeding a signal to a stub for producing a first signal  
that is a delayed form of the carrier wave.

21. A method for facilitating transmission of information using ultra-wide band transmission,  
the method comprising :

20 generating a narrow-band pulse signal for use in an ultra-wide band transmission,  
comprising:

generating a first pulse signal;

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producing a second pulse signal that is a delayed form of the first pulse signal; and

using a differential amplifier, subtracting the first pulse signal from the second pulse signal to produce the narrow-band pulse signal.

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22. The method of claim 21, comprising using a polarity generator to determine which of the first and second pulse signals is to be the positive input and which of the first and second pulses is to be the negative input to the differential amplifier, based on information to be transmitted.

10 23. A method for facilitating transmission of information, the method comprising:

generating an ultra-wide band signal, comprising:

generating a first ultra-wide band carrier signal;

combining the first carrier signal with a sine wave envelope

to generate a first combined signal with reduced side lobes relative to the first carrier signal;

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combining the first combined signal with an information

signal to generate a second combined signal; and

transmitting the second combined signal as at least part of a multi-band

ultra-wide band transmission.

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24. A method for facilitating transmission of information, the method comprising:

generating an ultra-wide band signal, comprising:

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combining an information signal with a sine wave envelope  
to generate a first combined signal;

combining the first combined signal with a generated  
carrier signal to generate a second combined signal with reduced side lobes relative to the  
5 generated carrier signal; and

transmitting the second combined signal as at least part of a multi-band  
ultra-wide band transmission.

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